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(54) Title: ALPHA-EMITTING HYDROXYAPATITE PARTICLES

(57) Abstract: The present invention provides Hydroxyapatite (HA) incorporating an alpha-emitting radionuclide or an *in vivo* generator for an alpha-emitting radionuclide. The invention further provides methods for the formation of such HA, pharmaceutical compositions comprising the HA and methods of medical treatment of cancerous or noncancerous disease including administering the HA or compositions thereof.